Original Research Article

THE AVOIDABLE THERAPEUTICAL COMPLICATIONS IN MEDICAL AND PAEDIATRIC SECTION OF A TEACHING HOSPITAL KPK, PAKISTAN

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ABSTRACT

Pharmacotherapeutical complications are health hazardous and matter great importance. Thus; it's essential to evaluate the possible drug related risks while prescribing the life saving drugs in clinical practice (patients of different age, indication, history and profile). The admission note and diagnostic laboratory information of patients have been examined for ADR's (adverse drug reactions), non- compliance, inappropriate dose and drug-drug interactions. A total 60 patients were studied for any possible therapeutical problems. The results obtained demands the services of professional pharmacist to deliver valuable pharmaceutical care in Khyber Teaching Hospital at basic (bottom) level to minimize the clinical errors. Counselling of the patient regarding the use of medication is another need to attain maximum drug compliance. Moreover; training programmes for medical and supporting staff should also be under an established satellite pharmacy to avoid prevailing clinical complications in health system.

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INTRODUCTION

The concept of drug related problems and pharmaceutical care, their importance and role in today's life and future was not well developed until 1990 when a first paper was published dealing with the drug related problems [1,2]. In this term "problem" is actually "an undesirable drug related event" [3] and the definition of drug-related problems is "an undesirable patient experience that interferes with a desired patient outcome" [4]. It involve errors in medication (either during prescribing, dispensing or administering the drug) and adverse drug reactions (any harmful response of a drug which occurs at doses normally used in human beings for prevention, diagnosis or treatment of disease or for the enhancement of physiological function)[5,6]. Sometimes the terms drug-related problems (DRP), drug therapy problems (DTP), medicine related problems (MRP) and medication-related problems

are used synonymously [7]. Drug-related problems are the main cause of increased cost of therapy[8,9] and are the 5th most common cause of morbidity and mortality behind the carcinoma, heart diseases, stroke (brain attack) and pulmonary disorders[10,11].

In order to better understand and correctly identify, the drug-related problems are categorized as the medical conditions resulting from following medication errors [5]:

- Wrong type of drug is being taken.
- The patient is not receiving right medication therapy for the condition he is suffering.
- Wrong dose is being taken (either too little or too much).
- Due to an adverse drug reaction.
- Due to a drug-food, drug-drug and drug laboratory interactions.
- Due to not receiving the prescribed drug.
- Due to taking of a drug without any valid indication.
- Due to wrong route of administration of drug.
- Due to wrong rate/frequency of the drug.
- Due to wrong time of administration of drug.

Categorizing the drug related problems in above mentioned eleven types is very useful as it shows how adverse drug reactions can occur which is a useful point for the pharmacists to identify, solve and prevent all types of drug related problems [5]. It helps the pharmacist in convincing the administrator that these problems are important and need an expert and also makes easy for the pharmacist to point out the DRPs and counsel other health care professional on that, which is the major role of pharmacist in clinical and hospital setup.

Drug-drug interactions are important type of drug-related problems and are easily predictable from previous medication record. Some of the drug related problems are responsible for the increased morbidity and mortality which resulted in the removal of some of the popular medications from the market [12]. Some Drug related problems are more common in the hospitalised patients and need an expert for the overlook of these problems in order to achieve definite patient outcomes and also to achieve the cost effectiveness for those patients who cannot afford the medication expenses in country like Pakistan as most of the population is below average line of poverty and the cost of medication is very high.

METHODOLOGY

In order to study the drug related problems in different aged patients of medical ward and peads Ward of Khyber teaching hospital (KPK) Pakistan a data collection form was used which included the patient demographics, his past medical history, family history, previous surgery history, current cause of hospitalization, current laboratory data and current medication record. The data of 60 patients was collected from medical ward and paeds ward of Khyber Teaching Hospital, Peshawar, (KPK) Pakistan and was analysed for any possible drug related problems. Detailed interviews of the patients were also conducted for data collection. The data was analysed and graphs were plotted for the results.
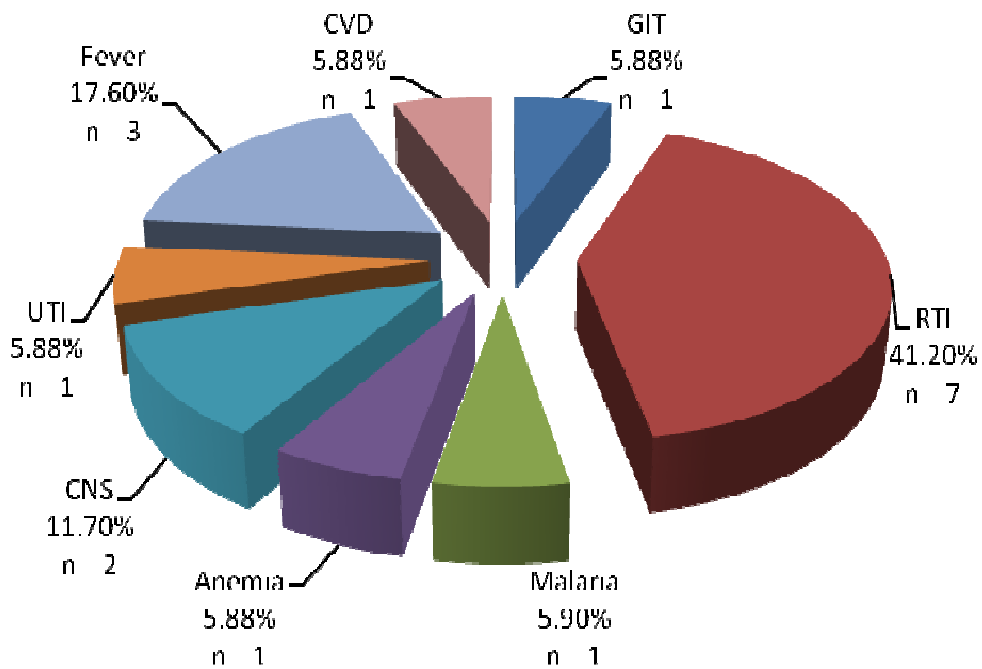
RESULTS

Out of 60 medication histories 43 were collected from Medical Ward of Khyber Teaching Hospital (KPK) Pakistan and 17 histories were collected from Paeds Ward of Khyber Teaching Hospital (KPK) Pakistan. The most commonly prevailed diseases in Medical ward were as Tuberculosis (9.3% of 43 cases), Cerebrovascular diseases (18.6% of 43 cases), HCV

with CLD (11.6% of 43 cases) GIT diseases (9.3% of 43 cases), Renal diseases (11.6% of 43 cases), CNS infections (4.65% of 43 cases), Anaemia (6.66% of 43 cases), Fever (11.6% of 43 cases), Malaria (14% of 43 cases), Diabetes mellitus (9.3% of 43 cases) and Rheumatoid Arthritis (2.32% of 43 cases).
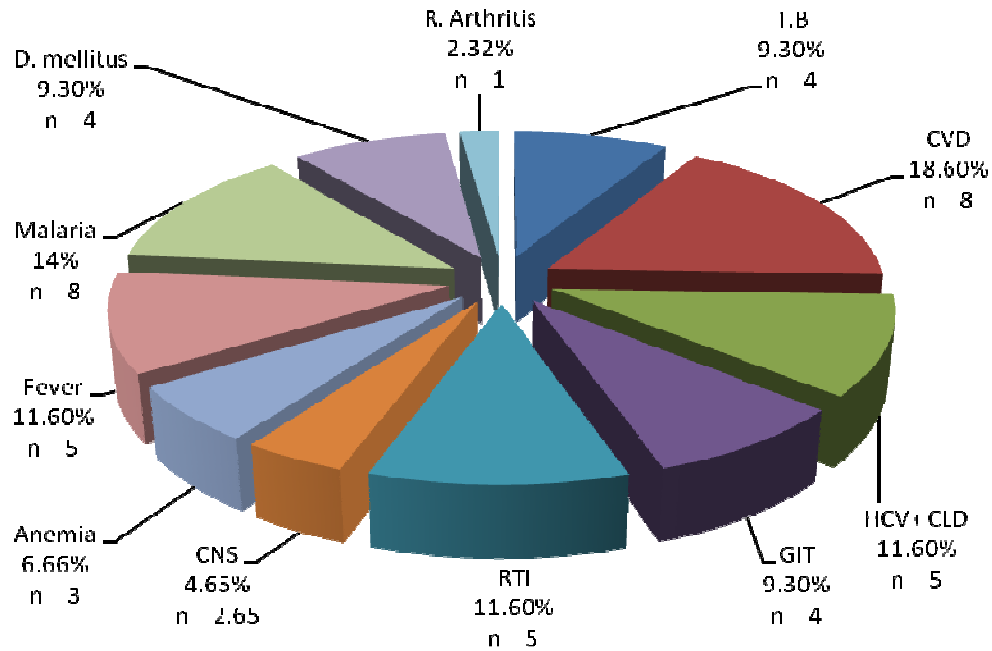
Fig 1: Graphical presentation of disease statistics in Medical Ward. N= frequency of disease.

Fig 2: Graphical presentation of disease statistics in Paeds Ward. N= frequency of disease.

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Similarly the 17 cases were collected from the Paeds Ward of Khyber Teaching Hospital (KPK) Pakistan and analysed. The most common diseases in Paeds ward were GIT diseases (5.88% of 17 cases), Respiratory Tract Infections (41.2% of 17 cases), Malaria (5.9% of 17 cases), Anaemia (5.88% of 17 cases), CNS Disorders (11.7% of 17 cases), Urinary Tract Infections (5.88% of 17 cases), Fever (17.6% of 17 cases) and CVS Disorders (5.88% of 17 cases). Graphical presentation of the diseases is presented in figure 1 and 2.

The most commonly prescribed class of drugs at medical ward of Khyber Teaching Hospital (KPK) Pakistan were cardiovascular drugs (24%), tonics (20%), antibiotics (18%), steroids (9%), analgesics (9%), diuretics (6%), anti-T.B (6%), anti-malarial (4%), anti-emetics (4%).

Similarly the class of drugs most commonly prescribed at paeds ward of Khyber Teaching Hospital during the four weeks were as Antibiotics (60%), Tonics (8%), anti-emetics (4%), Diuretics (4%), analgesics (12%), steroids (4%), anti-malarial (8%). The graphical presentation is shown in figure 3 and 4.
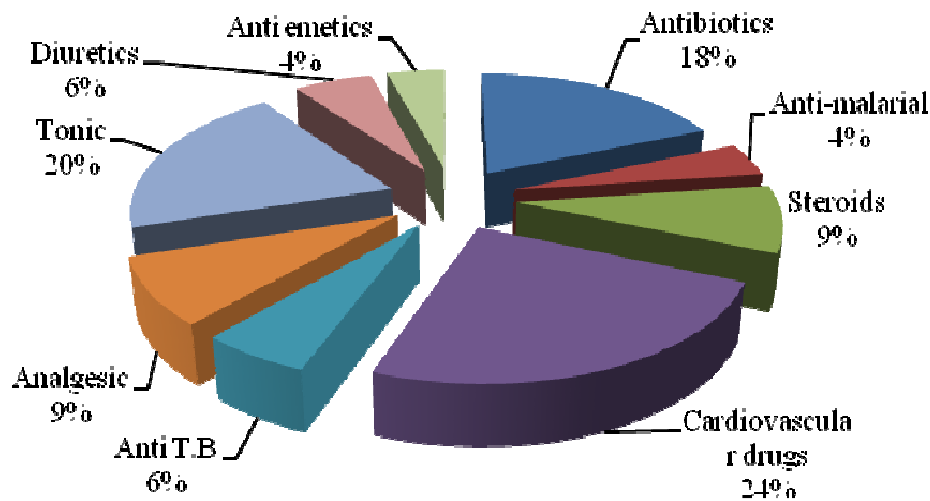

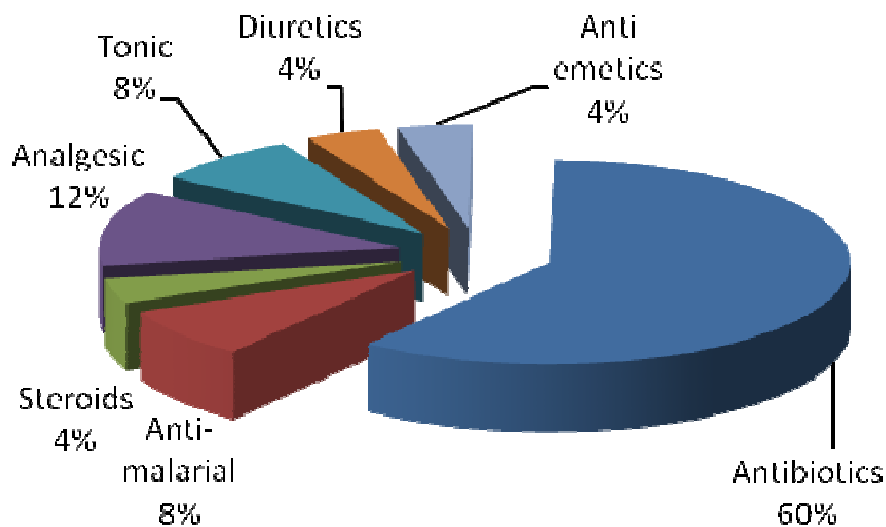**Fig 3: Graphical presentation of Drugs used in Medical Ward.**

Fig 4: Graphical presentation of Drugs used in Paeds Ward.

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The Dosage form prescribed at both medical ward and paeds ward are as syrups (6%), nebulizers (8%), Tablets (40.5%), Capsules (3.9%), Injections (43%). The graphical presentation of dosage form statistics is shown in figure 5.
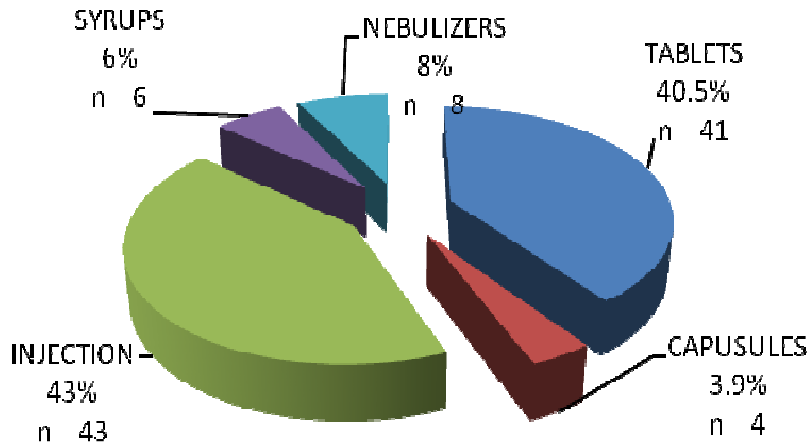
Fig 5: Graphical presentation of Dosage form & their frequency in Paeds & Medical Ward. N= frequency of dosage form.
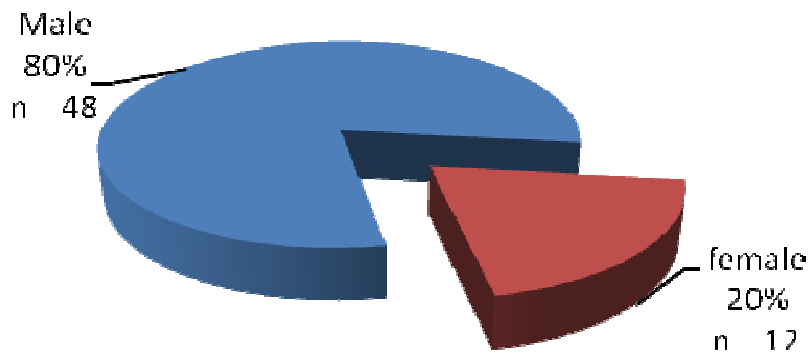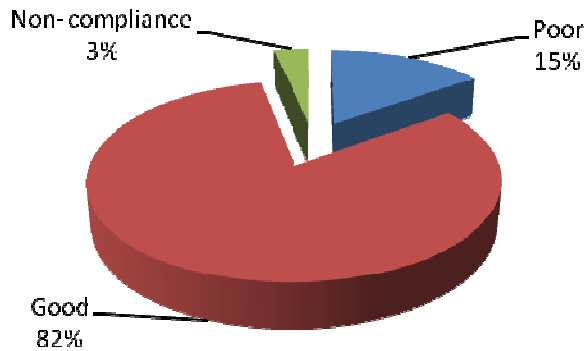

Fig 6: Graphical presentation of Gender wise distribution in Paeds & Medical Ward. n = frequency of gender.
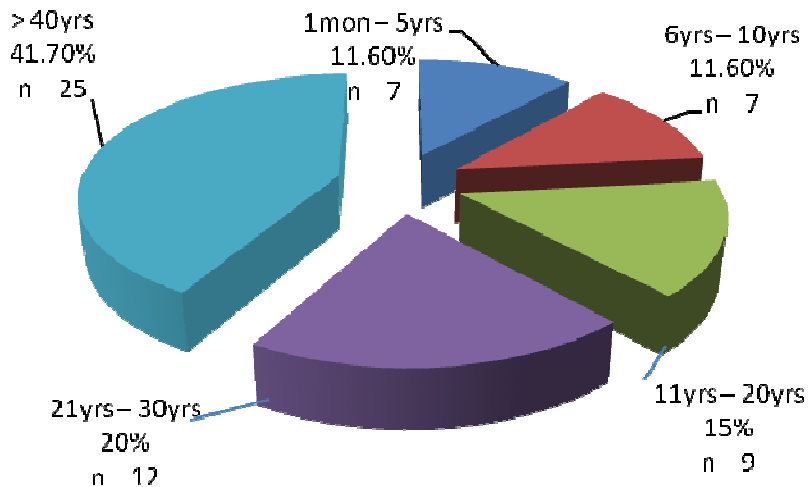

Fig 7: Graphical presentation of Age-wise distribution in Paeds B & Medical C Ward. n= frequency of age.

Out of 60 selected patients only 3% showed non-compliance and 15% showed poor compliance. Rest of the 82% showed a good compliance to the treatment regimen.

Fig 8: Graphical presentation of Compliance in Medical Ward and Paeds Ward.

The drug related problems observed during the analysis of the prescriptions in medical ward and paeds were untreated conditions (24.93%), Drugs given without any indication (20%), Improper drug selection (15%), Therapeutic duplication (7.5%), Improper dosage form (5%) and other than these wee categorized as miscellaneous problems (5%).
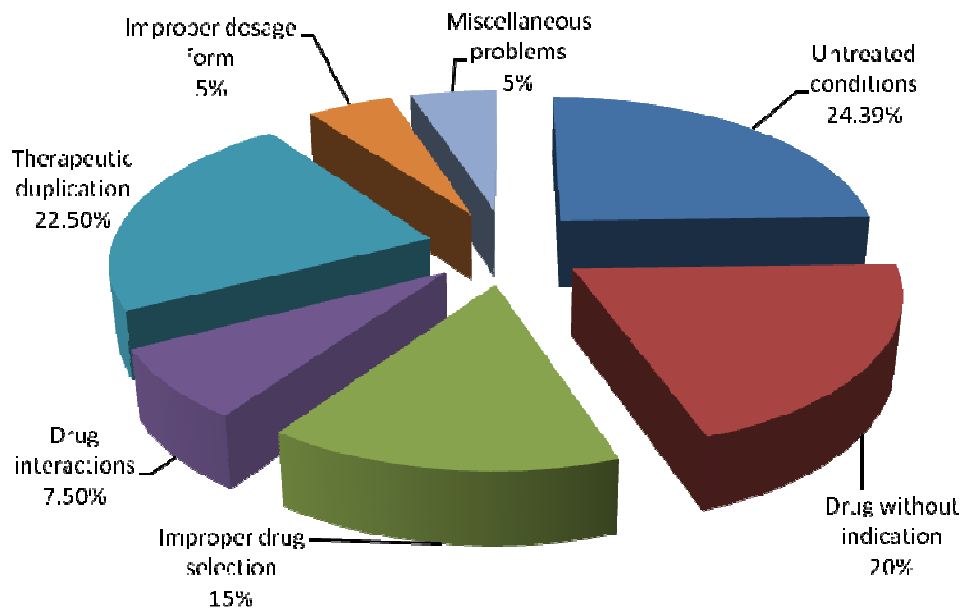
Fig 10: Graphical presentation of Drug related problems.

DISCUSSION

The study was conducted in two different wards of Khyber Teaching Hospital, Peshawar (KPK) Pakistan for the prevalence of drug-related problems in different age patients. From results of the data we came to know that out of various diseases Coronary obstructed pulmonary disease (COPD 20%) was the most frequent cause of hospitalization. Other common diseases were tuberculosis, malaria, nephritic syndrome, hypertension, diabetes mellitus, pneumonia etc. When the data was analysed for drug related problems the most frequent problems were untreated conditions, therapeutic duplication , drug without

indication, improper drug selection etc. For example regarding the drug interaction, in one of the case, a patient was receiving both phenotab and chloramphenicol. The efficiency of phenotab is increased in the presence of chloramphenicol leading to increased sedative effect of phenotab. Regarding improper drug selection, one of the cases, a patient was presented with Plasmodium falciparum malarial infection along with previous G6PD deficiency. He was dispensed with Quinine and quinine is reported to cause haemolysis, leucopoenia, agranulocytosis and thrombocytopenia in G6PD deficient patients. It is obvious that quinine is not a right selection.

In a study regarding drug-related problems carried out by K. K. Vktil et al suggested that Polypharmacy is one of the potential causes of DRPs and require identification of the drug-related problems and the patients need special attention [13]. In his study he found that nearly half of the patients who were admitted to hospital were prescribed with more than five drugs and hence they were exposed to Polypharmacy according to a common definition. Authors of a study carried among old age patients in Washington, Lowa, Maryland and Georgia reported that high rates of duplicative therapies, inappropriate duration of therapies, inappropriate dosages and contraindication persisted [14]. Linda M. Strand et al wrote detail information on drug related problems in hospitalised patients and differentiated their types for a clear identification so that these problems can be easily prevented [5].

CONCLUSION

The result of this study indicate that presence of a pharmacist is very much necessary in Khyber Teaching Hospital at ward level in order to minimize the drug related problems along with counselling of the patient regarding the use of medication so that a maximum compliance is achieved. Training programmes for all the medical staff should be arranged periodically and establishment of satellite pharmacy can also decrease the prevailing problems related to the drug administration and adverse reactions.

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